

The 100 Most Cited Articles in *AIChE Journal* History

Citations	Rank	Author	Title	Volume	Page	Year
1557	1	C. R. Wilke and P. Chang	Correlation of Diffusion Coefficients in Dilute Solutions	1	264	1955
1441	2	H. Renon and J. M. Prausnitz	Local Compositions in Thermodynamic Excess Functions for Liquid Mixtures	14	135	1968
1259	3	D. S. Abrams and J. M. Prausnitz	Statistical Thermodynamics of Liquid Mixtures: A New Expression for the Excess Gibbs Energy of Partly or Completely Miscible Systems	21	116	1975
881	4	A. Fredenslund, R. L. Jones, and J. M. Prausnitz	Group-Contribution Estimation of Activity Coefficients in Nonideal Liquid Mixtures	21	1086	1975
651	5	C. Tsonopoulos	An Empirical Correlation of Second Virial Coefficients	20	263	1974
544	6	B. I. Lee and M. G. Kesler	A Generalized Thermodynamic Correlation Based on Three-Parameter Corresponding States	21	510	1975
542	7	J. O. Hinze	Fundamentals of the Hydrodynamic Mechanism of Splitting in Dispersion Processes	1	289	1955
505	8	A. L. Myers and J. M. Prausnitz	Thermodynamics of Mixed-Gas Adsorption	11	121	1965
487	9	C. V. Sternling and L. E. Scriven	Interfacial Turbulence: Hydrodynamic Instability and the Marangoni Effect	5	514	1959
425	10	Y. Taitel and A. E. Dukler	A Model for Predicting Flow Regime Transitions in Horizontal and Near Horizontal Gas-Liquid Flow	22	47	1976
391	11	John Happel	Viscous Flow in Multiparticle Systems: Slow Motion of Fluids Relative to Beds of Spherical Particles	4	197	1958
382	12	Y. T. Shah, B. G. Kelkar, S. P. Godbole, and W.-D. Deckwer	Design Parameters Estimations for Bubble Column Reactors	28	353	1982
351	13	G. C. A. Schuit and B. C. Gates	Chemistry and Engineering of Catalytic Hydrodesulfurization (<i>Journal Review</i>)	19	417	1973
329	14	A. B. Metzner and R. E. Otto	Agitation of Non-Newtonian Fluids	3	3	1957
311	15	W. M. Deen	Hindered Transport of Large Molecules in Liquid-Filled Pores	33	1409	1987
302	16	D. B. Anthony and J. B. Howard	Coal Devolatilization and Hydrogasification	22	625	1976
299	17	P. E. Savage, S. Gopalan and T. I. Mizan and C. J. Martino	Reactions at Supercritical Conditions: Applications and Fundamentals (<i>Journal Review</i>)	41	1723	1995
295	18	L. A. Bromley	Thermodynamic Properties of Strong Electrolytes in Aqueous Solutions	19	313	1973
294	19	H. C. Van Ness, S. M. Byer, and R. E. Gibbs	Vapor-Liquid Equilibrium: Part I. An Appraisal of Data Reduction Methods. Part II. Correlations from P-x Data for 15 Systems	19	238	1973
289	20	Y. Taitel, D. Bornea, and A. E. Dukler	Modelling Flow Pattern Transitions for Steady Upward Gas-Liquid Flow in Vertical Tubes	26	345	1980
287	21	D. Kunii and J. M. Smith	Heat Transfer Characteristics of Porous Rocks	6	71	1960
276	22	A. J. Michaels, S. K. Chandrasekaran, and J. E. Shaw	Drug Permeation Through Human Skin: Theory and in Vitro Experimental Measurement	21	985	1975
275	23	P. Schneider and J. M. Smith	Adsorption Rate Constants from Chromatography	14	762	1968
271	24	R. A. McAllister	The Viscosity of Liquid Mixtures	6	427	1960
268	25	D. W. Dodge and A. B. Metzner	Turbulent Flow of Non-Newtonian Systems	5	189	1959
268	25	R. F. Benenati and C. B. Brosilow	Void Fraction Distribution in Beds of Spheres	8	359	1962
267	27	A. B. Metzner and J. C. Reed	Flow of Non-Newtonian Fluids-Correlation of the Laminar, Transition, and Turbulent-flow Regions	1	434	1955
258	28	W. Hayduk and H. Laudie	Prediction of Diffusion Coefficients for Nonelectrolytes in Dilute Aqueous Solutions	20	611	1974
257	29	C. N. Satterfield	Trickle-Bed Reactors (<i>Journal Review</i>)	21	209	1975
257	29	P. S. Virk	Drag Reduction Fundamentals (<i>Journal Review</i>)	21	625	1975
257	29	C. J. S. Petrie and M. M. Denn	Instabilities in Polymer Processing	22	209	1976
241	32	D. J. Jeffrey and Andreas Acrivos	The Rheological Properties of Suspensions of Rigid Particles	22	417	1976
239	33	R. L. Curl	Dispersed Phase Mixing: I. Theory and Effects in Simple Reactors	9	175	1963
237	34	D. S. H. Wong and S. I. Sandler	A Theoretically Correct Mixing Rule for Cubic Equations of State	38	671	1992
231	35	B. C. Sakiadis	Boundary-Layer Behavior on Continuous Solid Surfaces: I. Boundary-Layer Equations for Two-Dimensional and Axisymmetric Flow	7	26	1961
230	36	A. E. Handlos and T. Baron	Mass and Heat Transfer from Drops in Liquid-liquid Extraction	3	127	1957

Citations	Rank	Author	Title	Volume	Page	Year
227	37	Peter Harriott	Mass Transfer to Particles: Part I. Suspended in Agitated Tank; Part II Suspended in a Pipeline	8	93	1962
226	38	J. Happel	Viscous Flow Relative to Arrays of Cylinders	5	174	1959
223	39	S. W. Churchill and R. Usagi	A General Expression for the Correlation of Rates of Transfer and Other Phenomena	18	1121	1972
215	40	S. Beret and J. M. Prausnitz	Perturbed Hard-Chain Theory: An Equation of State for Fluids Containing Small or Large Molecules	21	1123	1975
213	41	J. Newman and W. Tiedemann	Porous-Electrode Theory with Battery Applications (<i>Journal Review</i>)	21	25	1975
212	42	C. J. Radke and J. M. Prausnitz	Thermodynamics of Multi-Solute Adsorption from Dilute Liquid Solutions	18	761	1972
210	43	S. Kim and K. P. Johnston	Clustering in Supercritical Fluid Mixtures	33	1603	1987
208	44	B. C. Sakiadis	Boundary-Layer Behavior on Continuous Solid Surfaces: II. The Boundary Layer on a Continuous Flat Surface	7	221	1961
208	44	C. Y. Wen and Y. H. Yu	A Generalized Method for Predicting the Minimum Fluidization Velocity	12	610	1966
208	44	M. Ishii and N. Zuber	Drag Coefficient and Relative Velocity in Bubbly, Droplet or Particulate Flows	25	843	1979
207	47	S. K. Bhatia and D. D. Perlmutter	A Random Pore Model for Fluid-Solid Reactions: I. Isothermal, Kinetic Control	26	379	1980
205	48	S. Yagi and D. Kunii	Studies on Effective Thermal Conductivities in Packed Beds	3	373	1957
202	49	Stephen Whitaker	Diffusion and Dispersion in Porous Media	13	420	1967
198	50	M. D. Donohue and J. M. Prausnitz	Perturbed Hard Chain Theory for Fluid Mixtures: Thermodynamic Properties for Mixtures in Natural Gas and Petroleum Technology	24	849	1978
197	51	N. Nishida, G. Stephanopoulos, and A. W. Westerberg	A Review of Process Synthesis	27	321	1981
196	52	C. N. Satterfield, C. K. Colton, and W. H. Pitcher, Jr.	Augmentation of Film Condensation on the Outside of Horizontal Tubes	19	628	1973
194	53	M. Ishida and C. Y. Wen	Comparison of Kinetic and Diffusional Models for Solid-Gas Reactions	14	311	1968
193	54	K. C. Chao and J. D. Seader	A General Correlation of Vapor-Liquid Equilibria in Hydrocarbon Mixtures	7	598	1961
191	55	S. Mori and C. Y. Wen	Estimation of Bubble Diameter in Gaseous Fluidized Beds	21	109	1975
190	56	M.-C. Yang and E. L. Cussler	Designing Hollow-Fiber Contactors	32	1910	1986
183	56	T. Z. Harmathy	Velocity of Large Drops and Bubbles in Media of Infinite or Restricted Extent	6	281	1960
182	58	H. L. Toor and J. M. Marchello	Film-penetration Model for Mass and Heat Transfer	4	97	1958
182	58	R. Rajagopalan and C. Tien	Trajectory Analysis of Deep-Bed Filtration with the Sphere-in-Cell Porous Media Model	22	523	1976
180	60	C. F. Reusch and E. L. Cussler	Selective Membrane Transport	19	736	1973
180	60	N. F. Carnahan and K. E. Starling	Intermolecular Repulsions and the Equation of State for Fluids	18	1184	1972
180	60	S. F. Chung and C. Y. Wen	Longitudinal Dispersion of Liquid Flowing through Fixed and Fluidized Beds	14	857	1968
179	63	J. F. Brennecke and C. A. Eckert	Phase Equilibria for Supercritical Fluid Process Design	35	1409	1989
177	64	G. R. Gavalas	A Random Capillary Model with Application to Char Gasification at Chemically Controlled Rates	26	577	1980
176	65	L. A. Cutter	Flow and Turbulence in a Stirred Tank	12	35	1966
175	66	R. V. Mrazek and H. C. Van Ness	Heats of Mixing: Alcohol-Aromatic Binary Systems at 25°, 35°, and 45°C	7	190	1961
174	67	R. A. Brown	Theory of Transport Processes in Single Crystal Growth from the Melt	34	881	1988
173	68	M. Blander and J. L. Katz	Bubble Nucleation in Liquids	21	833	1975
172	69	T. Nitta, E. A. Turek, R. A. Greenkorn, and K. C. Chao	A Group Contribution Molecular Model of Liquids and Solutions	23	144	1977
168	70	J. S. Vrentas and J. L. Duda	Molecular Diffusion in Polymer Solutions	25	1	1979
167	71	H. S. Mickley and D. F. Fairbanks	Mechanism of Heat Transfer to Fluidized Beds	1	374	1955
167	71	T. J. Edwards, G. Maurer, J. Newman, and J. M. Prausnitz	Vapor-Liquid Equilibria in Multicomponent Aqueous Solutions of Volatile Weak Electrolytes	24	966	1978
167	71	B. Linnhoff and J. R. Flower	Synthesis of Heat Exchanger Networks	24	633	1978
166	74	T. F. Anderson, D. S. Abrams, and E. A. Grens	Evaluation of Parameters for Nonlinear Thermodynamic Models	24	20	1978
166	74	J. C. Slattery	Flow of Viscoelastic Fluids Through Porous Media	13	1066	1967
165	76	D. S. Scott and F. A. L. Dullien	Diffusion of Ideal Gases in Capillaries and Porous Solids	8	113	1962
165	76	R. Prasad and K. K. Sirkar	Dispersion-Free Solvent Extraction with Microporous Hollow-Fiber Modules	34	177	1988
164	78	K. W. McHenry, Jr., and R. H. Wilhelm	Axial Mixing of Binary Gas Mixtures Flowing in a Random Bed of Spheres	3	83	1957
163	79	O. Bilous and N. R. Amundson	Chemical Reactor Stability and Sensitivity	1	513	1955
162	80	K. B. Bischoff	Effectiveness Factors for General Reaction Rate Forms	11	351	1965

Citations	Rank	Author	Title	Volume	Page	Year
161	81	C.-C. Chen, H. I. Britt, J. F. Boston, and L. B. Evans	Local Composition Model for Excess Gibbs Energy of Electrolyte Systems: Part 1. Single Solvent, Single Completely Dissociated Electrolyte Systems	28	588	1982
160	82	A. Acrivos, M. J. Shah, and E. E. Petersen	Momentum and Heat Transfer in Laminar Boundary-Layer Flows of Non-Newtonian Fluids Past External Surface	6	312	1960
160	82	M. Hartman and R. W. Coughlin	Reaction of Sulfur Dioxide with Limestone and the Grain Model	22	490	1976
160	82	H. L. Toor	Solution of the Linearized Equations of Multicomponent Mass Transfer. 2. Matrix Methods	10	460	1964
158	85	C. Kravaris and C.-B. Chung	Nonlinear State Feedback Synthesis by Global Input/Output Linearization	33	592	1987
157	86	J. L. Duda, J. S. Vrentas, S. T. Ju, and H. T. Liu	Prediction of Diffusion Coefficients for Polymer-Solvent Systems	28	279	1982
156	87	N. Itoh	A Membrane Reactor Using Palladium	33	1576	1987
155	88	J. J. Carberry and R. H. Bretton	Axial Dispersion of Mass in Flow Through Fixed Beds	4	367	1958
155	88	D. R. Olander	Simultaneous Mass Transfer and Equilibrium Chemical Reaction	6	233	1960
155	88	S. Hu and R. C. Kintner	Fall of Single Liquid Drops Through Water	1	42	1955
154	91	T. W. Weber and R. K. Chakravorti	Pore and Solid Diffusion Models for Fixed-Bed Adsorbers	20	228	1974
153	92	S. Whitaker	Forced Convection Heat Transfer Correlations for Flow in Pipes, Past Flat Plates, Single Cylinders, Single Spheres, and for Flow in Packed Beds and Tube Bundles	18	361	1972
152	93	H. L. Toor	Solution of the Linearized Equations of Multicomponent Mass Transfer. 1.	10	448	1964
152	93	L. M. Naphtali and D. P. Sandholm	Multicomponent Separation Calculations by Linearization	17	148	1971
151	95	L. C. Yen and S. S. Woods	A Generalized Equation for Computer Calculation of Liquid Densities	12	95	1966
149	96	N. N. Li	Permeation through Liquid Surfactant Membranes	17	459	1971
149	96	A. C. Payatakes, C. Tien, and R. M. Turian	A New Model for Granular Porous Media: Part I. Model Formation. Part II. Numerical Solution of Steady State Incompressible Newtonian Flow Through Periodically Constricted Tubes	19	58	1973
149	96	R. Luus and T. H. I. Jaakola	Optimization by Direct Search and Systematic Reduction of the Size of Search Region	19	760	1973
148	99	L. H. S. Roblee, R. M. Baird, and J. W. Tierney	Radial Porosity Variations in Packed Beds	4	460	1958
147	100	C. Tien and A. C. Payatakes	Advances in Deep Bed Filtration	25	737	1979

Acknowledgment

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